

existed in some previous phyletic stage, paired rows of external, segmental organs running down the back of the insect from one end to the other, just as the legs at one phyletic period extended the entire length of the ventral surface, and still do in the very lowest insects, and further, that on the thorax these organs developed finally, in the evolution of insects, into wings. Tracheal gills might represent such organs. And the fact that the dorsal prothoracic discs in *Musca* and the nematocera develop into the pupal spiracles lends great weight to this notion as these, like the tracheal gills, are respiratory organs. The well known theory of Gegenbaur and Lubbock, tracing the origin of wings in insects to tracheal gills, seems thus to obtain a new support.

Another matter which seems worth mentioning is that in different holometabolic insects, the extremities or the thoracic and abdominal imaginal discs (when such are present) may appear at very different times in the ontogeny. In some insects these appear early, and in some late, in the embryonic development, in some early, and in some

late, in the larval development. For instance, in the lower orders of holometabolic insects, as in those having incomplete metamorphosis, the anlagen of the extremities appear very early in the embryo. In *Melophagus* the thoracic discs, homologous organs, appear rather late in the embryo, while the abdominal discs appear probably early in the larval period. In *Corethra* the imaginal discs, also homologous to extremities, delay their appearance until just before pupation. Thus the epigenetic period in insects, when new organs are forming, does not end with the birth of the larva from the egg, but extends over the larval and even over the pupal period. The embryonic development of the insect really does not end until the imago bursts from the puparium, the embryonic, larval, and pupal periods being essentially identical. The principal significance of the pupal period and the metamorphosis is that it is the time when the larval characters which were adopted for use during a period of free life in the midst of the development, and which would be valueless to the imago, are corrected or abandoned.

DIAPHEROMERA FEMORATA.

I FIND among my notes the following observations on this insect in captivity.

The general color of the female is brown, marked by streaks and dots of a lighter brown or shaded darker at the sides of the body and at each joint. The face is orange, the antennae and palpi brown. The legs have a greyish green tinge and are lighter

than the body, but darker at the ends of the joints. The fore legs are always different in color from the others being brown above and dull yellow below and when stretched forward beside the appressed antennae (which just surpass them), as is always the case at rest, they make the insect appear a third longer than it is. They eat the edge of a leaf, usually straddling it with their legs and in an hour will devour a piece an inch long

by a third of an inch wide; the heavier veins of the oak are avoided. They are exceedingly slow in movement. One remained almost motionless for four or five hours and then climbed the side of the box slowly and cautiously.

The earliest pairing of the sexes was noted Sept. 22, and a male was in one instance almost continuously coupled with a female for eight days, and died immediately afterward, while the female lived until December 10, laying eggs at intervals. Mr. L. Trouvelot who also reared this insect found that the male usually died within two days after the close of copulation. One female laid 35 eggs between Sept. 10 and Oct. 5 and died Oct. 11 with 15 developed and 5 or 6 undeveloped eggs in her ovaries. The eggs are dropped loosely upon the ground and it has repeatedly happened to Mr. Trouvelot and myself that eggs which did not hatch after the winter had passed went over a second winter and then gave out the young. Out of 110 eggs laid one October only 7 hatched the next year, in July; in another year the earliest eggs hatched June 22.

Mr. J. Elliot Cabot informed me that at Beverly, Mass., the country people call these insects "witches horses."

Samuel H. Scudder.

PROCEEDINGS OF THE CLUB.

9 October, 1896.—The 193d meeting was held at Mr. S. Henshaw's, Mercer Circle, Cambridge. Mr. A. P. Morse in the chair.

Mr. S. Henshaw showed specimens of *Troides euphorum* from Cooktown, Queensland, Australia.

Some discussion followed, in which all participated, upon the abundance of the following insects around Boston during the past summer, *i. e.*, the army worm (*Leucania unipuncta*), the larvae of *Lachnosterna*, *Cryptorhynchus lapethe* and *Papilio philevor*.

Mr. J. W. Folsom spoke of a new species of myrmecophilous *Smynturus* in which the eyes are wanting and remarked upon its characters and upon the habits of myrmecophilous *Thysanura*. He showed drawings of the new species.

Mr. R. Hayward spoke briefly upon *Phengodes plumosa*. Glow-worms were very abundant in Milton during the past summer, but although he had searched carefully for them, he had found but one male imago and that at a considerable distance from where the glow-worms were seen. They had fed in captivity upon earthworms and a species of *Julus*.

13 November, 1896.—The 194th meeting was held at Mr. S. Henshaw's, Mercer Circle, Cambridge, Mr. A. G. Mayer in the chair.

Mr. E. A. C. Olive and Miss Mabel Olive of Cooktown, Queensland, Australia, were elected to active membership.

Mr. A. G. Mayer gave an interesting account of his recent trip to Australia and briefly mentioned his observations on the insect fauna, as well as his general impressions of that region.

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